IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	:	Amirzadeh-Asl
Serial No.	:	10/566,595
Filed	:	June 12, 2006
For	:	USE OF TIO_2 RESIDUES FROM A SULFATE METHOD
Art Unit	:	1793
Examiner	:	John A. Hevey

November 13, 2008

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

I hereby certify that this correspondence is being filed electronically addreessed to Commissioner for Patents, P. O. Box 1450, Alexandria, VA. 22313-1450 on the date shown below:

Eileen Sheffield

Eileen Sheffield 11/13/08

Signature Date

AMENDMENT UNDER RULE 116

Sir:

Responsive to the final office action mailed June 16, 2008, please grant the accompanying petition for a two month extension of time and amend the above-identified patent application as follows:

IN THE CLAIMS

Claims 1-7 (caneeled)

8. (previously presented) A method comprising subjecting a TiO_2 residue from a sulfate process to heat treatment and, without being mixed further with other substances, performing a metallurgical process or preparing a refractory material with the heat treated TiO_2 residue.

9. (currently amended) The method according to claim 8, wherein the TiO_2 residues are subjected to a ~~to~~ heat treatment of from ~~at from~~ 100 to 1300°C.

10. (previously presented) The method according to claim 8, wherein the TiO_2 residues are in powder form or in the form of molded bodies.

11. (previously presented) The method according to claim 9, wherein the TiO_2 residues are in powder form or in the form of molded bodies.

12. (previously presented) The method of claim 8, wherein the TiO_2 residue comprises from 35 to 70 wt. % TiO_2; from 5 to 40 wt.% SiO_2; from 2 to 15 wt.% of an iron compound; from 1 to 15 wt.% MgO; and from 0.5 to 15 wt.% CaO.

13. (previously presented) The method of claim 8, wherein TiO_2 residue comprises calculated as oxides from 20 to 80 wt.% TiO_2; from 2 to 30 wt.% SiO_2; from 0 to 15 wt.% A_12O_3; from 0 to 15 wt. % Fe_2O_3; from 1 to 15 wt.% M_gO; from 0 to 15 wt.% CaO.

14. (previously presented) The method according to claim 8, wherein the dried TiO_2 residues are injected into a metallurgical furnace.

15. (previously presented) The method according to claim 8, wherein the dried TiO_2 residues are used in a tap hole mass.

16. (previously presented) The method of claim 9, wherein the TiO_2 residue comprises from 35 to 70 wt. % TiO_2; from 5 to 40 wt.% SiO_2; from 2 to 15 wt.% of iron compounds; from 1 to 15 wt.% MgO; and from 0.5 to 15 wt.% CaO.

17. (previously presented) The method of claim 10, wherein the TiO_2 residue comprises from 35 to 70 wt. % TiO_2; from 5 to 40 wt.% SiO_2; from 2 to 15 wt.% of iron compounds; from 1 to 15 wt.% MgO; and from 0.5 to 15 wt.% CaO.

18. (previously presented) The method of claim 11, wherein the TiO_2 residue comprises from 35 to 70 wt. % TiO_2; from 5 to 40 wt.% SiO_2; from 2 to 15 wt.% of iron compounds; from 1 to 15 wt.% MgO; and from 0.5 to 15 wt.% CaO.

19. (previously presented) The method of claim 9, wherein TiO_2 residue comprises, calculated as oxides, from 20 to 80 wt.% TiO_2; from 2 to 30 wt.% SiO_2; from 0 to 15 wt.% A_12O_3; from 0 to 15 wt. % Fe_2O_3; from 1 to 15 wt.% M_gO; from 0 to 15 wt.% CaO.

20. (previously presented) The method of claim 10, wherein TiO_2 residue comprises, calculated as oxides, from 20 to 80 wt.% TiO_2; from 2 to 30 wt.% SiO_2; from 0 to 15 wt.% A_12O_3; from 0 to 15 wt. % Fe_2O_3; from 1 to 15 wt.% M_gO; from 0 to 15 wt.% CaO.

21. (previously presented) The method of claim 11, wherein TiO_2 residue comprises, calculated as oxides, from 20 to 80 wt.% TiO_2; from 2 to 30 wt.% SiO_2; from 0 to 15 wt.% A_12O_3; from 0 to 15 wt. % Fe_2O_3; from 1 to 15 wt.% M_gO; from 0 to 15 wt.% CaO.

22. (canceled)

23. (previously presented) The method according to claim 9, wherein the dried TiO_2 residues are injected into a metallurgical furnace.

24. (previously presented) The method according to claim 10, wherein the dried TiO_2 residues are injected into a metallurgical furnace.

25. (previously presented) The method according to claim 11, wherein the dried TiO_2 residues are injected into a metallurgical furnace.

26. (previously presented) The method according to claim 12, wherein the dried TiO_2 residues are injected into a metallurgical furnace.

27. (previously presented) The method according to claim 13, wherein the dried TiO_2 residues are injected into a metallurgical furnace.

28. (canceled)

29. (canceled)

30. (previously presented) The method of claim 8, wherein a metallurgical process is performed.

31. (previously presented) The method of claim 8, wherein a refractory material is prepared.

REMARKS

Entry of this amendment is respectfully requested.

Claims 8-11, 14-15, 23-25 and 30-31 were rejected under 35 U.S.C. §103(a) for allegedly being anticipated by EP '740 in view of Auer. Claims 12-13 and 16-22 were rejected over the foregoing combination of references further in view of Pierce. Applicants respectfully traverse each of these rejections.

The rejections should be withdrawn because the Examiner does not note the differences between the claims and the cited references; there is only a statement of what Amirzadeh-Asl discloses and then, without explanation, the Examiner applies Auer, but without any reasoning as to what gap Auer is filling in Amirzadeh-Asl. Thus, the rejection should be withdrawn for this reason alone.

Furthermore, the Examiner fails to address an important feature of claim 8, i.e., "without being mixed further with other substances". With reference to this feature, Amirzadeh-Asl describes an:

> "Additive (I) comprises residues from TiO_2 prodn. and one or more of coal, coal-contg. residues, Fe, Fe_2O_3, Fe- or Fe_2O_3-contg. residues. (I) comprises 50-95 wt.% residues from TiO_2 prodn., and 5-50 wt.% coal; or 10-80 wt.% residues from TiO_2 prodn., 5-70 wt.% coal and 5-40 wt.% Fe- and/or Fe_2O_3-contg. residues in the form of a sintered body." (see claim 1, underlining added).

The presently claimed invention relates to:

> "A method comprising subjecting a TiO_2 residue from a sulfate process to heat treatment and, without being mixed further with other substances, performing a metallurgical process or preparing a refractory material with the heat treated TiO_2 residue" (see claim 8, underlining added).

Therefore a differenee between Amirzadeh-Asl (EP'740) and the presently claimed invention is that Amirzadeh-Asl fails to teach or suggests the underlined feature.

Auer fails to overcome this deficiency, and does not give one skilled in the art any hint or suggestion that the necessary addition of Amirzadeh-Asl, i.e., "one or more of coal, coal-contg. residues, Fe, Fe_2O_3, Fe- or Fe_2O_3,- contg. residues" could be omitted. In faet, Auer discloses:

> "A low-sulphate, neutralised, inert, finely-divided filler (SNIFF) in which at least 90% of the particles have a diameter of less than 90 µm , obtained from the insoluble residue from sulphuric acid digestion of raw materials in the production of titanium dioxide by the sulphate process whieh shows a pH of 5-12, preferably 6-10, a sulphate content in the eluate (DEV S4) of less than 2.4 (preferably less than 1.2, most preferably less than 0.2) g/l and a sulphate content (based on solid) of less than 3.0 (preferably less than 1.5, most preferably less than 0.5) wt (see DE'021, claim 1, underline added).

Therefore one of skill in the art had at least to assume that only low-sulphate, neutralized TiO_2 residues could be used. Thus, the rejection of claims based on the combination of Amirzadeh-Asl and Auer alone must be withdrawn.

Pierce discloses that a

> "... principal object of the invention is the provision, as a new article of commerce, of a titanium slag concentrate of good quality for the production of titanium dioxide pigment by the sulfuric acid digestion process, and with a titanium-iron ratio so high that ferrous sulfate need not be removed by crystallization in the course of the pigment production process" (see Pierce, col. 1, l. 5 to 13).

As a solution Pierce proposes to provide:

> "A titanium slag concentrate the constituents of which arc confined, with the exception of the possible addition of extraneous lime, to those normally present in ores of titanium and iron and in the coal used to smelt said ores to produce a metallic iron product and the titanium slag concentrate capable of being separated

from one another while in the molten state at a temperature of 1500° to 1700°C., said slag concentrate containing as the essential components from 2 to 20% iron oxide calculated as Fe, up to 18% lime calculated as CaO, the total amount of said iron and lime ranging between 5 and 20%, and the balance titanium oxide, the minimum titanium oxide content being 60% calculated as TiO_2, said slag concentrate being further characterized in that upon sulfuric acid digestion and leaching at least 85% of the titanium is recoverable in each solution with an acid-to-titanium ratio in the solution of between 1.8 and 2.3" (see Pierce, cl. 1).

Pierce fails to overcome the deficiencies of the combination of Amirzadeh-Asl and Auer, so this rejection must be withdrawn as well.

Additionally, Auer teaches away from a combination with Amirzadeh-Asl. Referring to page 1, fourth paragraph, the machine translation of Auer provided by the Examiner, Auer discloses EP 611740 (Amirzadeh-Asl) and the filter cake produced thereby, and then goes on to teach away from using the method that is set forth in that reference because it is, according to Auer, not very economical. Auer reiterates that it is undesirable to use the methods he describes in the prior art in the last paragraph of page 1.

Furthermore, it appears that Auer wants a sulfate-poor, neutralized inert product, and the Examiner provides no explanation as to why one would then start with a TiO_2 residue from a sulfate process which may contain sulfate (See p. 2 of Auer, third full paragraph).

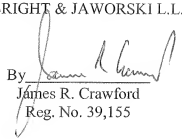
If Auer was aware of the teachings of Amirzadeh-Asl, then why didn't Auer himself apply that process. It is submitted that he did not do so because there was no need to.

In view of the foregoing, allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0624, under Order No. NY-DNAG-315-US.

Respectfully submitted

FULBRIGHT & JAWORSKI L.L.P.



By
James R. Crawford
Reg. No. 39,155

666 Fifth Avenue
New York, New York 10103
(212) 318-3000